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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/685,512	10/16/2003	Kurodo Maeda	02886.0085	5072

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EXAMINER

NILAND, PATRICK DENNIS

ART UNIT	PAPER NUMBER
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1714

DATE MAILED: 03/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/685,512

Applicant(s)

MAEDA, KURODO

Examiner

Patrick D. Niland

Art Unit

1714

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |  |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>4/04, 10/03</u> | 6) <input type="checkbox"/> Other: ____  |

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1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Pat. Application Pub. No. US 2003/0089223 Sugioka et al. in view of US Pat. No. 5525246 Kamiya et al., JP 7-189804 Toyota Jidosha KK (English abstract referenced), WO 02/099019 Itoh et al. (English abstract referenced), and JP 2000-88101 Isuzu Motors Ltd. (English abstracts referenced).

Kamiya discloses coating slide members with polyamide imide, lubricants including molybdenum disulfide and graphite or the like and friction adjusting agent including silicon nitride and alumina. See the abstract; column 2, lines 7-67, particularly 23-58; column 3, lines 1-51, particularly 1-8 and 34-35 which encompasses the instant claim 5; column 4, lines 14-26; and the remainder of the document. Kamiya does not teach using the instantly claimed epoxies nor the instantly claimed roughness profile nor the use of the lubricant coatings on piston skirts. It would have been obvious to one of ordinary skill in the art at the time of the instant invention to use the instantly claimed coatings on piston skirts because Kamiya teaches that the composition minus epoxy is a good lubricant surface for bearings, Sugioka et al. discloses similar compositions minus the friction adjuster for coating pistons at the abstract; sections [0005], [0007], [0008], [0011], [0013], [0014] where the recitations of these last two sections encompass using a mixture of epoxy and polyamideimide, [0015][0044], [0046] which encompasses a major portion of polyamide imide with epoxy; and the remainder of the document, the ordinary skilled

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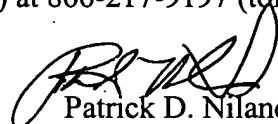
artisan would have expected the benefits of the combination of epoxy resin and polyamide imide of Sugioka and the function of the friction adjusters of Kamiya in a coating containing all of these components to contribute their known properties to the coated piston of Sugioka. It would have been obvious to one of ordinary skill in the art at the time of the instant invention to layer the epoxy and polyamideimide, though the mixture above fulfills simultaneously both of the layers of the instant claims, because Toyota discloses the benefits of layers of epoxy and polyamide imide in coating piston skirts and these benefits would have been expected in the above discussed piston and section [0016] of Sugioka encompasses such layers. It would have been obvious to one of ordinary skill in the art at the time of the instant invention to employ the instantly claimed streaking of the instantly claimed roughness profile because Isuzu discloses this roughness profile to be desired on low friction piston skirts because it gives an excellent coexistence of wear and abrasion resistance and low friction which according to the second supplied abstract is due to increasing the contact area which lowers pressure thereby reducing wear and friction is reduced. Since oil is held in the grooves, lubricity is improved. These grooves would be expected to hold the above discussed lubricating coating and thereby give the improved lubricity of the coating combined with the improvements resulting from the groove size of Isuzu. It would have been obvious to one of ordinary skill in the art at the time of the instant invention to use the epoxysilane of the instant claim 2 in the above discussed coating because Itoh shows such compounds to be useful in modifying polyamideimide piston coatings and its benefits would have been expected in the above discussed coatings.

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3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patrick D. Niland whose telephone number is 571-272-1121. The examiner can normally be reached on Monday to Thursday from 10 to 5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan, can be reached on 571-272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Patrick D. Niland  
Primary Examiner  
Art Unit 1714